

Use Attainability Analysis

for

WBID 0199 Turkey Creek

Submitted by

MEC Water Resources

to

Missouri Department of Natural Resources

Water Protection Program

Date received: December 1, 2007

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet A - Water Body Identification

I. Water Body Information (For water body being surveyed)

Water Body Name (from USGS 7.5' quad):	Turkey CR		
Missouri Water Body Identification (WBID) Number:	0199		
8-digit HUC:	20090108	County:	Lincoln
Upstream Legal Description (from Table H):	21, 49 N, 2W		
Downstream Legal Description (from Table H):	mouth		
Number of sites evaluated	3		
List all sites numbers, listed consecutively upstream to downstream:			
Site 1: Hwy D Bridge	Site 3: 100 m downstream of		
Site 2: 100 m downstream of site 1	Site 2		

II. Discharger Facility Information (list all permitted dischargers on the stream)

Discharger Facility Name(s):	Hawk Point WWTF
Discharger Permit Number(s):	MO 0028053

III. UAA Surveyor (please print legibly)

Name of Surveyor	Renee Martin	Telephone Number:	573-875-7844
Organization/Employer:	AE Solutions		
Position:	Env. Specialist		

Please verify that you have completed all sections, checked all applicable boxes and that everything is complete.

Signed: _____

Date: _____

10/12/07

RUC 10-18-07

Turkey Creek (WBID 199)



- Upstream Boundary
- Downstream Boundary

0 0.125 0.25 0.5 0.75 1 Miles

WBID # 0199Site # 01**Field Data Sheets for Recreational Use Stream Surveys****Data Sheet B – Site Characterization**

(must be completed for each site)

Date & Time: <u>9/27/07 0950</u>	Site Location Description (e.g., road crossing): <u>Hwy D Bridge</u>
Personnel (Data Collectors): <u>JH/JF</u>	
Current Weather Conditions: <u>Clear</u>	Facility Name: <u>Hawk Point WWTF</u>
Weather Conditions for Past 10 days: <u>rain/clear</u>	Permit Number: <u>MO0028053</u>
Drought Conditions?: No drought <input checked="" type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input type="checkbox"/>	

Site Location:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site 01	Easting (UTM X): <u>4318864</u>	Northing (UTM Y): <u>0662173</u>	Horizontal Accuracy: <u>29</u> ^{<u>JRH</u>} Meters <u>ft</u> (EPE / FOM / PDOP)
Site 11	Easting (UTM X): <u>4318913</u>	Northing (UTM Y): <u>0662356</u>	Horizontal Accuracy: <u>20</u> ^{<u>JRH</u>} Meters <u>ft</u> (EPE / FOM / PDOP)

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
<u>101-244</u>	<u>upstream</u>	<u>101-245</u>	<u>downstream</u>		
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

Uses Observed*: (Uses actually observed at time of survey.)

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use Data Sheet D- Recreational Use Interview when conducting interviews.)				

WBID # 0199Site # 01**Field Data Sheets for Recreational Use Stream Surveys****Data Sheet B – Site Characterization (continued)****Surrounding Conditions*:** (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input type="checkbox"/> Rural Residential
<input type="checkbox"/> Campgrounds	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> Fence	<input type="checkbox"/> No trespass sign	<input checked="" type="checkbox"/> Steep slopes	<input type="checkbox"/> Other:
Comments:				

Evidence of Human Use*: (Attach photos and reference in "Photos" section)

<input type="checkbox"/> Roads	<input type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Rope swings
<input type="checkbox"/> RV / ATV Tracks	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Livestock Watering
Comments / Other: <u>none</u>				

Substrate*: (These values should add up to 100%.)

<u>40</u> % Cobble	<u>20</u> % Gravel	% Sand	% Silt	% Mud/Clay	<u>40</u> % Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site)

<u>duckweed</u> <u>algae</u>

Water Characteristics*: (Mark all that apply.)

Odor:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input checked="" type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
Bottom Deposit:	<input type="checkbox"/> Sludge	<input checked="" type="checkbox"/> Solids	<input checked="" type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other:
Surface Deposit:	<input checked="" type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input type="checkbox"/> None	<input type="checkbox"/> Other:

*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that effect another use.

WBID # 0199

Site # 01

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B – Site Characterization (continued)

Additional Stream Morphology: (Record isolated pools or other features identified during the survey that may support recreational uses)

Channel Feature	Distance from access location (m)	Width (m)	Length (m)	Median Depth (m)	Max Depth (m)

Comments: (Please record any additional comments here.)

Please verify that you have completed all sections, checked all applicable boxes, and that the form is complete.

Surveyor's Signature: Jennifer Arable Date of Survey: 9/27/07
Organization: AE Solutions Position: Env. Specialist

ARC 10-18-07

Recreational Use Attainability Analysis Field Survey Sheet

Waterbody ID: 0199 Site #: 0199_01 Dissolved Oxygen: 2.13 (mg/L) Time: 0950

Estimated Channel Incision: 1.5 (m) (height between low bank width and water)

GPS Location (taken at transect 1):
 UTM X: 4318864
 Horizontal Accuracy Estimate (GPS Data Quality): +/- 2.9 (feet)

GPS Location (taken at transect 11):
 UTM X: 4318913
 Horizontal Accuracy Estimate (GPS Data Quality): +/- 2.0 (feet)

Average Stream Width: 2.5 (meters) Length of Survey Segment: 150 (meters)
 (To determine Length of Reach) (20x average stream width)

Field Staff: JH/JF

Dissolved Oxygen: 22.7 (% sat)
 Specific Cond: 506.0 (µS/cm)
 Water Temp.: 17.7 (°C)

Transect Cross-Section																										
Station	01		02		03		04		05		06		07		08		09		10		11					
	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)				
Left Bank	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
	1	0.22	0.01	0.43	0.05	0.14	0.04	0.14	0.04	0.68	0.01	0.11	0.02	0.18	0.00	0.31	0.00	0.22	0.03	0.39	0.04	0.52	0.00			
	2	0.44	0.02	0.86	0.13	0.48	0.07	0.28	0.07	0.16	0.02	0.22	0.02	0.36	0.00	0.62	0.00	0.44	0.05	0.78	0.04	1.04	0.00			
	3	0.66	0.03	1.29	0.21	0.72	0.07	0.42	0.10	0.24	0.02	0.33	0.02	0.54	0.00	0.93	0.00	0.66	0.08	1.17	0.06	1.56	0.00			
	4	0.88	0.06	1.72	0.25	0.96	0.10	0.56	0.11	0.32	0.04	0.44	0.04	0.72	0.00	1.24	0.00	0.88	0.09	1.56	0.09	2.08	0.00			
Right Bank	5	1.10	0.09	2.15	0.27	1.20	0.06	0.70	0.15	0.40	0.03	0.55	0.03	0.90	0.00	1.55	0.00	1.10	0.14	1.95	0.10	2.60	0.00			
	6	1.32	0.04	2.58	0.20	1.44	0.02	0.84	0.15	0.48	0.05	0.66	0.05	1.08	0.00	1.86	0.00	1.32	0.09	2.34	0.10	3.12	0.00			
	7	1.54	0.00	3.01	0.21	1.68	0.02	0.98	0.12	0.56	0.05	0.77	0.05	1.26	0.00	2.17	0.00	1.54	0.06	2.73	0.07	3.64	0.00			
	8	1.76	0.05	3.44	0.20	1.92	0.01	1.12	0.06	0.64	0.01	0.88	0.01	1.44	0.00	2.48	0.00	1.76	0.01	3.12	0.05	4.16	0.00			
	9	1.98	0.02	3.87	0.10	2.16	0.01	1.26	0.07	0.72	0.01	0.99	0.01	1.62	0.00	2.79	0.00	1.98	0.00	3.51	0.02	4.68	0.00			
Feature Type (riffle, run, or pool)	2.25	0	4.35	0	2.40	0	1.45	0	0.85	0	1.15	0	1.90	0	3.10	0	2.20	0	3.90	0	5.20	0	0	0		
	pool	pool	pool	pool	pool	pool	pool	pool	pool	pool	pool	pool	pool	pool	pool	pool	pool	pool	pool	pool	pool	pool	pool			
Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width.													drw										pool		drw	

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (depth). This width is the wetted width.
 GPS location corresponds to Transect 01 and Transect 11. Transects ordered in upstream to downstream order.
 Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten).
 Mark dry depth measurements as 0; record actual measurements to 0.01 meter unless depth is too deep to measure (then record as > 1).
 All measurements to be taken to the nearest 0.01 meter.

Signed: Jennifer Strabala Date: 10/11/07

WBID # 0199Site # 02**Field Data Sheets for Recreational Use Stream Surveys****Data Sheet B – Site Characterization**

(must be completed for each site)

Date & Time: <u>9/27/07 1010</u>	Site Location Description (e.g., road crossing): <u>100 m downstream of site 01</u>
Personnel (Data Collectors): <u>JH/TF</u>	
Current Weather Conditions: <u>clear</u>	Facility Name: <u>Hawk Point WWTF</u>
Weather Conditions for Past 10 days: <u>rain/clear</u>	Permit Number: <u>MO 0028053</u>
Drought Conditions?: No drought <input checked="" type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input type="checkbox"/>	

Site Location:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site 01	Easting (UTM X): <u>4318963</u>	Northing (UTM Y): <u>0662461</u>	Horizontal Accuracy: (EPE / FOM / PDOP) <u>20</u> ^{40 ft} Meters
Site 11	Easting (UTM X): <u>4318997</u>	Northing (UTM Y): <u>0662633</u>	Horizontal Accuracy: (EPE / FOM / PDOP) <u>19</u> ^{40 ft} Meters

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
<u>101-246</u>	<u>upstream</u>	<u>101-247</u>	<u>downstream</u>		
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

Uses Observed*: (Uses actually observed at time of survey.)

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use Data Sheet D- Recreational Use Interview when conducting interviews.)				

WBID # 0199Site # 02**Field Data Sheets for Recreational Use Stream Surveys****Data Sheet B – Site Characterization (continued)****Surrounding Conditions*:** (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input type="checkbox"/> Rural Residential
<input type="checkbox"/> Campgrounds	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> Fence	<input checked="" type="checkbox"/> No trespass sign	<input checked="" type="checkbox"/> Steep slopes	<input type="checkbox"/> Other:
Comments: <i>APH</i>				

Evidence of Human Use*: (Attach photos and reference in "Photos" section)

<input type="checkbox"/> Roads	<input type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Rope swings
<input type="checkbox"/> RV / ATV Tracks	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Livestock Watering
Comments / Other: <i>none</i>				

Substrate*: (These values should add up to 100%.)

<i>70</i> % Cobble	<i>10</i> % Gravel	% Sand	% Silt	% Mud/Clay	<i>20</i> % Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site)

<i>cat tails</i>

Water Characteristics*: (Mark all that apply.)

Odor:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input checked="" type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
Bottom Deposit:	<input type="checkbox"/> Sludge	<input checked="" type="checkbox"/> Solids	<input type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other:
Surface Deposit:	<input checked="" type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input type="checkbox"/> None	<input type="checkbox"/> Other:

*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that effect another use.

WBID # 0199

Site # 02

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B – Site Characterization (continued)

Additional Stream Morphology: (Record isolated pools or other features identified during the survey that may support recreational uses)

Channel Feature	Distance from access location (m)	Width (m)	Length (m)	Median Depth (m)	Max Depth (m)

Comments: (Please record any additional comments here.)

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Please verify that you have completed all sections, checked all applicable boxes, and that the form is complete.

Surveyor's Signature: Jennifer Thabert Date of Survey: 9/27/07
Organization: AE Solutions Position: Env. Specialist

RUC 10-15-07

Recreational Use Attainability Analysis Field Survey Sheet

Waterbody ID: 0199 Site #: 0199-02 (WBID_Site#)

Estimated Channel Incision: 1.5 (m) (height between low bank width and water)

GPS Location (taken at transect 1):
 UTM X: 43189163
 Horizontal Accuracy Estimate (GPS Data Quality): +/- 24 (feet)

GPS Location (taken at transect 11):
 UTM X: 0662633
 Horizontal Accuracy Estimate (GPS Data Quality): +/- 19 (feet)

Average Stream Width: 2.7 (meters) Length of Survey Segment: 150 (meters)
 (To determine Length of Reach) (20x average stream width)

Field Staff: JH/JF

Dissolved Oxygen
 Date: 9/27/07 Time: 1010
 Dissolved Oxygen: _____ (mg/L)
 Dissolved Oxygen: _____ (% sat)
 Specific Cond: _____ (µS/cm)
 Water Temp.: _____ (°C)

DRY

Transect Cross-Section																					
01	02		03		04		05		06		07		08		09		10		11		
	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	
0.17	0.00	0.43	0.00	0.49	0.00	0.10	0.01	0.13	0.02	0.35	0.00	0.12	0.01	0.21	0.00	0.24	0.00	0.39	0.00	0.36	0.00
0.34		0.86		0.98		0.20	0.02	0.26	<0.01	0.70		0.24	0.00	0.42		0.48		0.78		0.72	
0.51		1.29		1.47		0.30	0.04	0.39	0.02	1.05		0.36	0.01	0.63		0.72		1.17		1.08	
0.68		1.72		1.96		0.40	0.05	0.52	0.01	1.40		0.48	0.03	0.84		0.96		1.56		1.44	
0.85		2.15		2.45		0.50	0.00	0.65	0.02	1.75		0.60	0.02	1.05		1.20		1.95		1.80	
1.02		2.58		2.94		0.60	0.05	0.78	0.01	2.10		0.72	0.02	1.26		1.44		2.34		2.16	
1.19		3.01		3.43		0.70	0.02	0.91	0.00	2.45		0.84	<0.01	1.47		1.68		2.73		2.52	
1.36		3.44		3.92		0.80	0.00	1.04	0.00	2.80		0.96	0.00	1.68		1.92		3.12		2.88	
1.53		3.87		4.41		0.90	0.07	1.17	0.01	3.15		1.08	0.02	1.89		2.16		3.51		3.24	
1.75	0	4.35	0	4.90	0	1.05	0	1.30	0	3.50	0	1.25	0	2.10	0	2.40	0	3.90	0	3.65	0
dry	dry	dry	dry	dry	dry	00L	00L	00L	00L	dry	dry	dry	00L	dry	dry	dry	dry	dry	dry	dry	dry
Transects will be measured beginning on left descending bank (0 depth) and finishing on right (descending bank (0 depth). This width is the water depth.																					

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right ascending bank (0 depth). This width is the wetted width.
 GPS location corresponds to Transect 01 and Transect 11. Transects ordered in upstream to downstream order.

Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten).

Mark dry depth measurements as 0; record actual measurements to 0.01 meter unless depth is too deep to measure (then record as > 1).

Signed: Jennifer Drabos Date: 10/11/07

WBID # 0199Site # 03**Field Data Sheets for Recreational Use Stream Surveys****Data Sheet B – Site Characterization**

(must be completed for each site)

Date & Time: <u>9/27/07 1020</u>	Site Location Description (e.g., road crossing): <u>100m downstream of Site 02</u>
Personnel (Data Collectors): <u>JH/TF</u>	
Current Weather Conditions: <u>clear</u>	Facility Name: <u>Hawk Point WWTF</u>
Weather Conditions for Past 10 days: <u>rain/clear</u>	Permit Number: <u>mo 0028053</u>
Drought Conditions?: No drought <input checked="" type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input type="checkbox"/>	

Site Location:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site 01	Easting (UTM X): <u>4319038</u>	Northing (UTM Y): <u>0662740</u>	Horizontal Accuracy: (EPE / FOM / PDOP) <u>19</u> <u>JRH</u> Meters <u>fl</u>
Site 11	Easting (UTM X): <u>4319072</u>	Northing (UTM Y): <u>0662923</u>	Horizontal Accuracy: (EPE / FOM / PDOP) <u>16</u> <u>JRH</u> Meters <u>fl</u>

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
<u>101-248</u>	<u>upstream</u>	<u>101-249</u>	<u>dnstream</u>	<u>101-250</u>	<u>rural residential</u>
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
<u>101-251</u>	<u>Tire Swing</u>				
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

Uses Observed*: (Uses actually observed at time of survey.)

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use Data Sheet D- Recreational Use Interview when conducting interviews.)				

WBID # 0199Site # 03**Field Data Sheets for Recreational Use Stream Surveys****Data Sheet B – Site Characterization (continued)****Surrounding Conditions*:** (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input checked="" type="checkbox"/> Rural Residential
<input type="checkbox"/> Campgrounds	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> Fence	<input type="checkbox"/> No trespass sign	<input checked="" type="checkbox"/> Steep slopes	<input type="checkbox"/> Other:
Comments:				

Evidence of Human Use*: (Attach photos and reference in "Photos" section)

<input type="checkbox"/> Roads	<input type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Camping Sites	<input checked="" type="checkbox"/> Rope swings
<input type="checkbox"/> RV / ATV Tracks	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Livestock Watering
Comments / Other: <i>none</i>				

Substrate*: (These values should add up to 100%.)

<i>80</i> % Cobble	<i>10</i> % Gravel	% Sand	% Silt	% Mud/Clay	<i>10</i> % Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site)

<i>none</i>

Water Characteristics*: (Mark all that apply.)

Odor:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input type="checkbox"/> None	<input checked="" type="checkbox"/> Other: <i>dry</i>
Color:	<input type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
Bottom Deposit:	<input type="checkbox"/> Sludge	<input checked="" type="checkbox"/> Solids	<input type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input checked="" type="checkbox"/> Other: <i>dry</i>
Surface Deposit:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input type="checkbox"/> None	<input checked="" type="checkbox"/> Other: <i>dry</i>

*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that effect another use.

WBID # 0199

Site # 03

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B – Site Characterization (continued)

Additional Stream Morphology: (Record isolated pools or other features identified during the survey that may support recreational uses)

Channel Feature	Distance from access location (m)	Width (m)	Length (m)	Median Depth (m)	Max Depth (m)

Comments: (Please record any additional comments here.)

Please verify that you have completed all sections, checked all applicable boxes, and that the form is complete.

Surveyor's Signature: Jennifer Trabu Date of Survey: 9/27/07
Organization: AE Solutions Position: Env. Specialist

RNC 10-18-07

Recreational Use Attainability Analysis Field Survey Sheet

Waterbody ID: 0199 Site #: 099-03 (WBID Site#)

Estimated Channel Incision: 1.5 (m) (height between low bank width and water)

GPS Location (taken at transect 1):
 UTM X: 4319038
 Horizontal/Accuracy Estimate (GPS Data Quality): +/- 19 (feet)

GPS Location (taken at transect 11):
 UTM X: 4319042
 Horizontal/Accuracy Estimate (GPS Data Quality): +/- 16 (feet)

Average Stream Width: 2.75 (meters) Length of Survey Segment: 150 (meters)
 (To determine Length of Reach) (20x average stream width)

Field Staff: JH/JF

Date: 9/23/07 Time: 1020

Dissolved Oxygen: 1 (mg/L)

Dissolved Oxygen: 1 (% sat)

Specific Cond: 1 (µS/cm)

Water Temp.: 12.2 (°C)

DRY

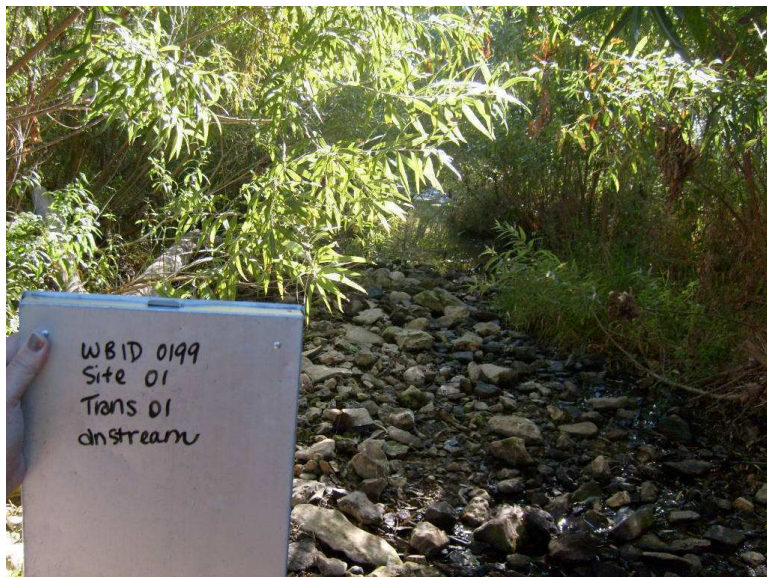
Transect Cross-Section																							
Station	01		02		03		04		05		06		07		08		09		10		11		
	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)			
Left Bank	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	1	0.15	0.00	0.21	0.00	0.25	0.00	0.32	0.00	0.24	0.00	0.30	0.00	0.34	0.00	0.45	0.00	0.22	0.00	0.37	0.00	0.18	0.00
	2	0.30	0.42	0.42	0.42	0.50	0.64	0.64	0.64	0.48	0.60	0.60	0.60	0.68	0.90	0.90	0.44	0.44	0.74	0.74	0.36	0.36	0.36
	3	0.45	0.63	0.63	0.63	0.75	0.96	0.96	0.96	0.72	0.90	0.90	0.90	1.02	1.35	1.35	0.66	0.66	1.11	1.11	0.54	0.54	0.54
	4	0.60	0.84	0.84	0.84	1.00	1.28	1.28	1.28	0.96	1.20	1.20	1.20	1.36	1.80	1.80	0.88	0.88	1.48	1.48	0.72	0.72	0.72
	5	0.75	1.05	1.05	1.05	1.25	1.60	1.60	1.60	1.20	1.50	1.50	1.50	1.70	2.25	2.25	1.10	1.10	1.85	1.85	0.90	0.90	0.90
	6	0.90	1.26	1.26	1.26	1.50	1.92	1.92	1.92	1.44	1.80	1.80	1.80	2.04	2.70	2.70	1.32	1.32	2.22	2.22	1.08	1.08	1.08
	7	1.05	1.47	1.47	1.47	1.75	2.24	2.24	2.24	1.68	2.10	2.10	2.10	2.38	3.15	3.15	1.54	1.54	2.59	2.59	1.26	1.26	1.26
	8	1.20	1.68	1.68	1.68	2.00	2.56	2.56	2.56	1.92	2.40	2.40	2.40	2.72	3.60	3.60	1.76	1.76	2.96	2.96	1.44	1.44	1.44
9	1.35	1.89	1.89	1.89	2.25	2.88	2.88	2.88	2.16	2.70	2.70	2.70	3.06	4.05	4.05	1.98	1.98	3.33	3.33	1.62	1.62	1.62	
Right Bank	1.50	0	2.10	0	2.50	0	3.20	0	2.40	0	3.00	0	3.40	0	4.50	0	2.25	0	3.75	0	1.85	0	0
Feature Type (riffle, run, or pool)	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry

Notes: Transients will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width.
GPS location corresponds to Transient 01.

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width.
 GPS location corresponds to Transect 01 and Transect 11. Transects ordered from upstream to downstream order.
 Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten).
 Mark dry depth measurements as 0; record actual measurements to 0.01 meter unless depth is too deep to measure (then record as > 1).
 All measurements to be taken to the nearest 0.01 meter.

Signed: Jennifer Drabek Date: 10/11/07

WBID# 0199 Turkey Creek



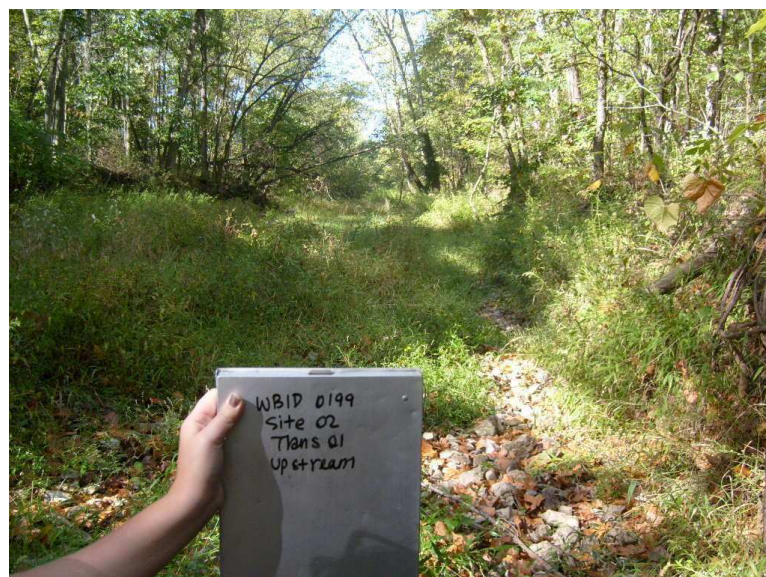
Site# 1 Photo ID# 245, Downstream



Site# 1 Photo ID# 244, Upstream

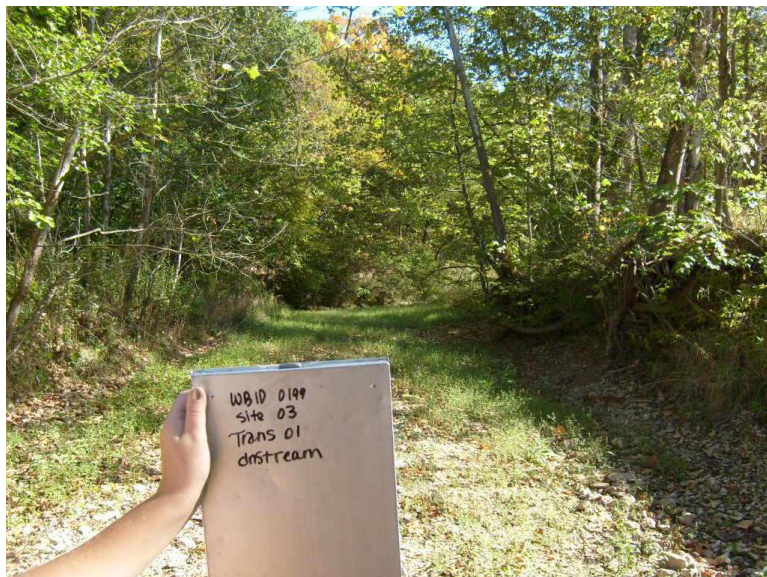


Site# 2 Photo ID# 247, Downstream

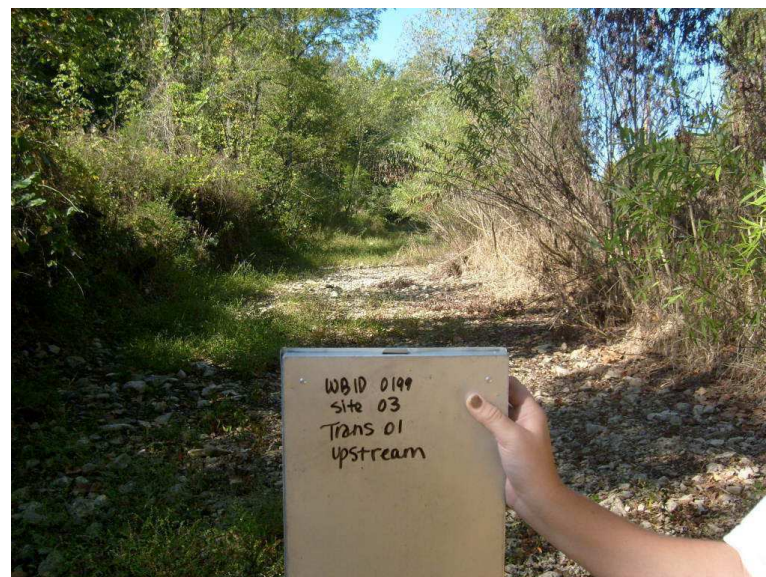


Site# 2 Photo ID# 246, Upstream

WBID# 0199 Turkey Creek



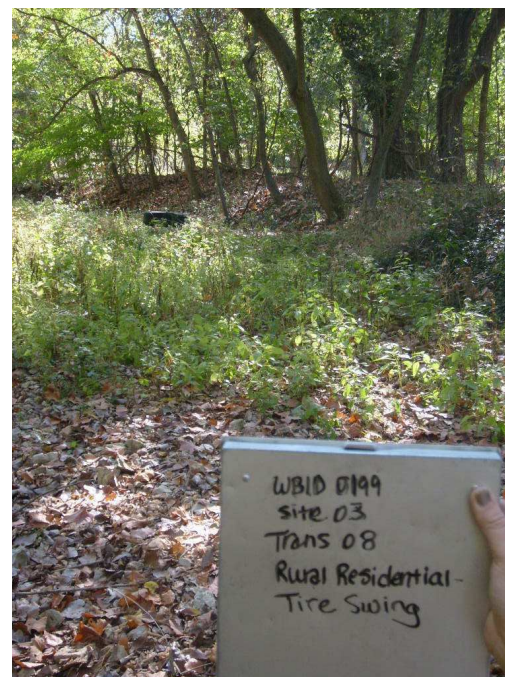
Site# 3 Photo ID# 249, Downstream



Site# 3 Photo ID# 248, Upstream



Site# 3 Photo ID# 250, Rural Residential



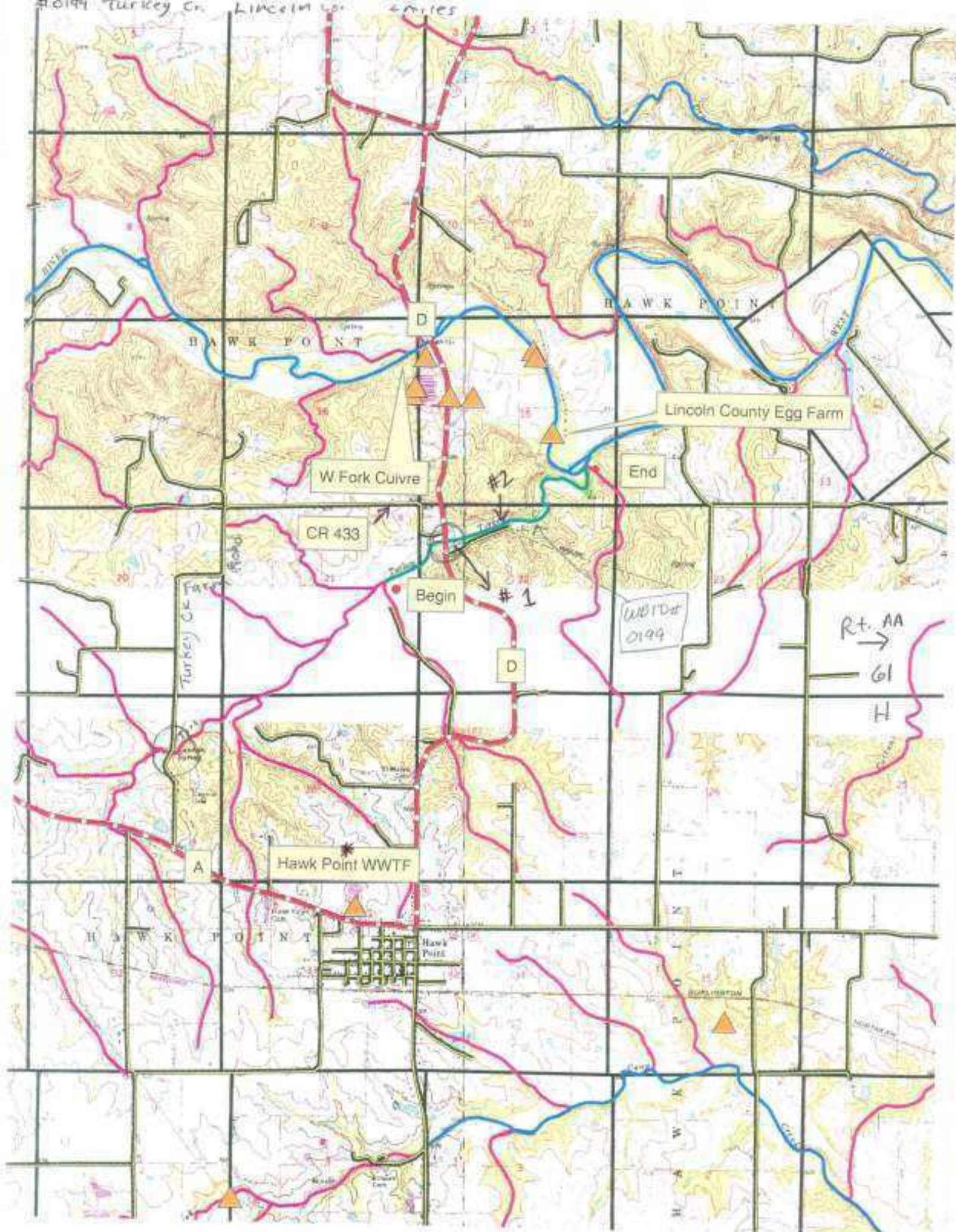
Site# 3 Photo ID# 251, Tire swing

August 30, 2005; 10:15 a.m.

At the time and date above, I called Deborah Hirschak (636-338-4460), who lives on Turkey Creek (WBID #199), to follow up on comments she submitted 7/13/05. She wrote that her son, nieces and nephews wade in the creek and there are “deep spots where they swim”. The purpose of my phone call was to determine exactly where these activities occurred. She told me today that they swim near Turkey Creek Farm Road, which crosses the creek in the segment above where the UAA was performed. In checking the map, this is in the unclassified part of Turkey Creek. She says they swim there “all the time” in the summer.

I submit this as a follow-up interview.

Anne Peery
DNR/WPP
8/30/05



Missouri Department of Conservation follow-up comments on Turkey Creek (WBID 0199)

Cindy DiStefano from MDC called the DNR office (WPP) in Jefferson City June 28, 2006. She said that MDC personnel have observed a plunge pool with tiki torches, a “real family spot” north of the Hwy D bridge over Turkey Creek. This is within the segment of the 2005 UAA.

I submit this as further evidence to support retaining the WBCR use for this creek.

Anne Peery
6/28/06

Field Data Sheet for Recreational Use Stream Survey

Data Sheet D—Recreational Use Interview

(A separate data sheet must be completed for each person interviewed.)

Interviewer: Richard Dameron
Interviewed: ☒ In person ☐ By phone
Date & Time: 7/10/2006 1600 hrs
Reason for the interviewee selection: Follow-up on Public Comment
Water Body Segment Name and Identification Number:
Water Body Segment Location Description (e.g. Highway 36 Bridge to Missouri River):
Comments:

—UNSUPERVISED CHILDREN SHALL NOT BE INTERVIEWED—

CONTACT INFORMATION

Legal Name: STEPHEN MCMURRAY
Current Address: 1110 S. COLLEGE AVE COLUMBIA, MO.
How long have you lived near this water body? N/A
Other Information, such as phone number, occupation, or age (optional):
(573) 882-9409 ext. 3208, Resource Scientist, Adult

PERSONAL USE

Do you or your family recreate on the water body? ☐ Yes ☒ No

Activity	# of times/period	When? (season or year)	Where?
Swimming			
Kayaking			
Tubing			
Water Skiing			
Boating			
Wading			
Hunting			
Fishing			
Trapping			
Other			

If no, please state the reasons why (general aesthetics, water quality, lack of depth, weather, safety, velocity):

Comments:

Field Data Sheet for Recreational Use Stream Survey

Data Sheet D—Recreational Use Interview

WITNESSED USE

Has this activity occurred since November 28, 1975? ☒ Yes ☐ No

Activity	# of times/period	When? (season or year)	Where?
Swimming	Potentially year round	As needed for survey	Establish sites
Kayaking			
Tubing			
Water Skiing			
Boating	SAME AS ABOVE	SAA	SAA
Wading	SAA	SAA	SAA
Hunting			
Fishing			
Trapping			
Other			

Comments: MDC has conducted surveys of Freshwater Mussel Population throughout MO. Methods include wading and snorkeling or diving.

THIS STREAM HAS ESTABLISHED SAMPLE SITES: ☐ YES ☒ NO

WATERSHEDS NOT SURVEYED TO DATE ARE SCHEDULED TO BE SURVEYED w/IN THE NEXT 10 YEARS.

ANECTODAL USE (Uses that individuals have heard about, but not seen or done themselves.)

Has this activity occurred since November 28, 1975? ☒ Yes ☐ No

Activity	# of times/period	When? (season or year)	Where?
Swimming	SAA	SAA	SAA
Kayaking			
Tubing			
Water Skiing			
Boating	SAA	SAA	SAA
Wading	SAA	SAA	SAA
Hunting			
Fishing			
Trapping			
Other			

Comments:

SAME AS ABOVE COMMENTS

Interviewer's Signature: _____

Date: 7/10/06



"Cindy DiStefano "
<Cindy.DiStefano@mdc.mo.gov>

03/26/2008 11:34 AM

To "Michael Kruse" <michael.kruse@dnr.mo.gov>

cc

bcc

Subject Fwd: DNR Request - Sarah, Marv, Jen, Kenda

>>> Lynn Schrader 03/18/08 10:10 AM >>>
Gang,

With this note, I'll confirm that the latter observations were after 1975....especially since a couple of you reporting may not of even been born yet.

Would you guys confirm to Cindy the request for Stater, Brushy, and Bigelow creeks, please.

I know, I know.....the Clean Water Act says streams are suppose to be swimmable whether we actually saw someone or not. Cindy is doing her best for these.

Thanks,

Lynn

>>> Cindy DiStefano 3/14/2008 1:43 PM >>>
Lynn,

The following is a request received from DNR that I have edited to pertain to your region. I have included only the streams in your region and added page numbers that correspond to the page numbers on the map file. Hopefully, this information will be easy to obtain. If possible, I would like the information by March 26th, so I can meet DNR's deadline.

Email from Mike Kruse, DNR:

I am following up on conversations you previously had with Donna Menown regarding the letter of comments provided to us from John Hoskins and the MDC on 8/24/2005. The letter pertains to observations of whole-body contact recreation in streams we completed Use Attainability Analyses for in 2005. After reviewing the 2005 UAAs additional questions arose that we hope you may be able to answer. We greatly appreciate all your help on this matter.

After reviewing the UAAs available on-line, it became apparent that some of the surveys were completed in locations other than the streams in question. Since the comments in the letter from the MDC did not provide WBID numbers and the maps provided in the 2005 UAAs may not be entirely accurate, we cannot be certain those observations came from the correct streams. Would you be able to tell us if the following observations were indeed made on the correct stream segments and equally important if the observations occurred after 11/28/1975? I have attached maps and locations of the streams in question.

Stater Cr. (WBID 1850): public swimming observed - Crawford Co. - Page 6

Brushy Fk. (WBID 33): children playing and splashing observed - Lincoln Co. - Page 8

Bigelow's Cr. (WBID 1608): children playing and splashing observed -
St. Charles Co - Page 10

Additionally, the following list of streams is of those the MDC
observed WBCR, however we need confirmation the actions occurred after
11/28/1975.

Whittenburg Cr. (WBID 1899): public swimming observed - Crawford Co.
Birkhead Br. (WBID 34): children playing and splashing observed -
Lincoln Co.
Paris Br. (WBID 176): children playing and splashing observed -
Lincoln Co.
Turkey Cr. (WBID 199): public swimming observed - Lincoln Co.
Mill Cr. (WBID 2124): public swimming observed - Washington Co.

I will be at a meeting next week, so if you have questions please
contact Mike at:

Mike Kruse
Div. of Env. Quality/Water Protection Program
MO Dept. of Natural Resources, Jeff. City
(573) 522-4901; FAX [522-9920]
e-mail: michael.kruse@dnr.mo.gov

Thanks!
Cindy



Maps_UAA Kruse.doc